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ABSTRACT

The Pagitron electronic composition system offers the potential to manipulate all elements of pagination as easily and as quickly as words are manipulated on computerized text-editing systems. The importance of such an all-encompassing pagination system is that it allows the editorial side of a newspaper or magazine total control over everything that once was done in the back shop. The system, which is about 95% complete, consists of five components: a front end module, a scan/plot module, a makeup module, a compose/typeset module, and a plotter module. Two other modules are also available: the rotating drum graphic typesetter which combines the scan/plot and compose/typeset modules, and the typesetter and COM output module which can drive either a CRT typesetter or a computer output microfilm. The Pagitron would be most efficient in a queued composition system where each page is "closed" and put into a queue by the editor before any material goes to the back shop. Because of the length of composing time needed for an individual page, no newspaper has yet adopted the Pagitron; however, as the cost of computer speed and storage drops, the problem of composition time may be eliminated. (FL)

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ON-LINE PAGINATION INCLUDING ILLUSTRATIONS

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ON-LINE PAGINATION INCLUDING ILLUSTRATIONS

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Introduction

It hasn't been that many months ago that I sat in an M.I.T. lecture hall. A panel of experts was gathered with the help of a Gannett grant, and the topic du jour was pagination. I asked the distinguished panelists when we might expect to see a pagination system with the ability to process half-tone illustrations beyond the mere indication of shape and placement. The answer was "certainly not before the early 1980s." You can imagine my suprise when a few months later I saw the prototype for just such a system. In preparing this report I discovered further surprises, such as that the half-tones can just as easily be full color as black and white.

The system whereof I speak is called the Pagitron system, developed by Optronics International, a relatively small company in Chelmsford, Mass., that specializes in computer-processed graphics. To date the Pagitron system has not been implemented by an American newspaper or magazine, though a good deal of the system is alive and paginating in a Finish photogravure printing house, Helprint Oy. The Pagitron electronic composition system is interesting not only since it seems to be the state-of-the-art, but also because it gives us a clear look at the not-so-distant

future of pagination.

The importance of such an all-encompassing pagination system is that it allows the editorial side of a newspaper or magazine total control over everything that was done in the back shop. Any editor who has been stymied by gremlins in the back shop can appreciate that improvement.

The Pagitron System

The Pagitron System, which to date is about 95% complete, consists of the following components:

1. FRONT END MODULE--This is the part of the system that provides the textual input. The Front End Module has its own computer, CRTs on which reporters write their stories and editors edit them (though there is no logical reason why the system could not handle OCR text entry), a 60 million character disk for storage, and a line printer for making paper copies of the stories where needed. The system can also handle wire stories that can be piped directly into storage or fed in from paper tape, with proofing capabilities from the line printer.

2. SCAN/PLOT MODULE--The scanner/plotter swings both ways, receiving line art, glossy photos, wire photos and graphics and converting them into digital information, and also outputting digitized images with a laser diode light source onto negative film. The plotting part of this module also can serve as an output device for the entire Pagitron system. Photos are scanned as continuous tones and converted into 128 gray level picture elements. While graphic material is being fed into the system, qualitative changes can be

made. For instance, the gray scale or densities can be modified on half-tone photographs, or photos from a variety of sources can be standardized for tonal quality. Outputs can either be screened or be in continuous tones for gravure and microfilm (COM) applications.

3. MAKEUP MODULE--The Makeup Module is the heart of the Pagitron system. This module takes the data stored from the Front End Module and the Scanner and uses it to specify page layout. Basically, it consists of a large graphic display terminal with a control tablet and keyboard, two 60 megabyte disks and its own computer. Unlike existing pagination systems, the Pagitron can handle, display and output half-tone and even color images. To speed up the layout process, the operator does, as in existing systems, manipulate graphic elements on the screen by outline blocks. But at any time the entire page or any portion of it can be displayed on the screen with the full text and graphics. Among the features of the Makeup Module are the ability to insert rules, boxes and to benday screen any area of the page. It also provides gridding to automatically align items in a column. If the textual material is straight text, this module has the ability to hyphenate and justify it. The Font Library portion of this module can store over 100 fonts on line, and it has the ability to scan a new font, digitize it and associate it with the keystrokes on the terminal keyboard.

4. COMPOSE/TYPESET MODULE--After the pagination is completed, this module takes the disk with the page layout, the scanned graphics and the H & J'ed text and converts this

data into raster scan form (a horizontal scan) for plotting on a drum film plotter. This module consists of three disks: the disk from the makeup module, the font disk and an output disk. Each font consists of 120 characters with sizes available from 4 1/2 to 99 points. This module also performs the actual cropping and sizing of graphics. The output disk could drive not only a plotter writing on film but also a laser platemaker.

5. PLOTTER MODULE--The rotating drum film writer or plotter takes the finished pages and puts them on film. Like the other modules, the Plotter has its own mini-computer and disk drive. It takes the output disk from the Typeset/Compose Module and writes it on up to 18" x 23" film sheets with a 17" x 22" exposed area. A complete page can be exposed in less than seven minutes. Output can be positive or negative with emulsion up or down. Photos can be put out either as continuous tones for gravure or as electronically generated halftones. Standard resolution for continuous tones is 125 lines per inch, for screened half-tones is either 125 or 65 lines, depending on which specific plotter is used, and line art or text is output at 500 lines per inch.

Two other modules are available. The ROTATING DRUM GRAPHIC TYPESETTER MODULE combines the Scan/Plot and Compose/Typeset modules above. This is the only typesetter capable of combining graphics and type onto film where gravure output is required. The TYPESETTER AND COM OUTPUT MODULE can drive either a CRT typesetter or a COM (Computer Output Microfilm).

If color is needed in the pagination process, color scanner/plotters would be substituted for black and white, yielding color separations as the final output.

Implications

The environment in which the Pagitron system would be the most efficient is in a queued composition system, i.e., where each page is "closed" and put into a queue by the editor before any material goes to the back shop. Most magazines and many newspapers operate under this system. What the Pagitron system means ultimately is that the editor has final control and responsibility. With the addition of a laser platemaker to the system, the back shop will consist only of pressmen. There will be no typesetting, no paste-up and no engraving. The Pagitron system would have the editor sending stories and graphics into a queue. When the queue is filled, the layout is then executed. The layout is next sent to a composer and finally to the laser platemaker. The entire process is under complete editorial control.

Several newspapers have looked at the Pagitron system, but to date there are no takers because of the length of composing time for an individual page (roughly 6 1/2 minutes). But by the adoption of a queued composition system and with the judicious deployment of advanced composition for soft news pages, the Pagitron is feasible for daily newspaper use. The Providence Journal is now seriously considering Pagitron. As is common in newspaper technology adoption, the Journal may well be the ice-breaker

to get a Pagitron system going in the U. S., because usually any newspaper is willing to be the second paper to try a totally new system. As the cost of computer speed and storage drops in the next few years, the Pagitron's most serious problem--composition time--may be eliminated.

Current areas of development at Optronics include the development of Pagitron within a space satellite system (there is great interest in this in Europe) and the development of page makeup by a voice response system. In the latter the inclusion of digitized voice prints on the system could provide the ultimate in security control.

What the Pagitron system offers (and other systems that may follow its lead) is the potential to manipulate all elements of pagination as easily and as quickly as words are manipulated on computerized text editing systems. And for the editor this can all be done with complete editorial control--at least until there is a computer crash.

NOTE

This paper was written and edited on a Hazeltine 2000 CRT terminal. For duplication the paper was output by an Anderson-Jacobson printing terminal using a "daisy wheel" printing element.

SOURCES

Bryant, M. "DIGITAL IMAGE PROCESSING: The Answer to Tomorrow's Information Needs." Optronics International Inc., October, 1974.

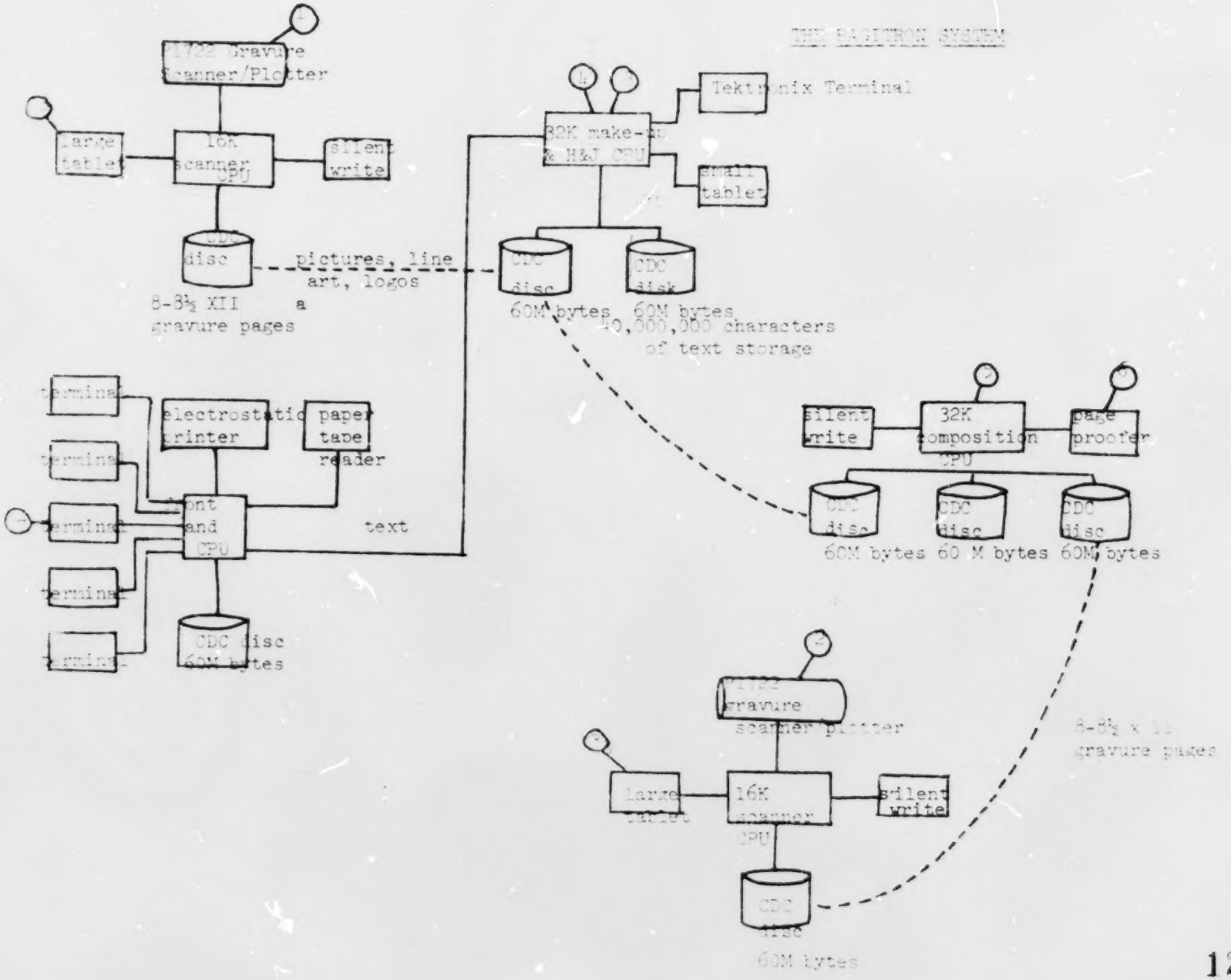
"Description of the Pagitron System." Unpublished paper. Optronics International, n.d.

"Graphic Processing." Optronics International Inc., Annual Report 1977.

"High-Speed Rotating Drum Digital Scanning and Writing Systems." Brochure #23. Optronics International Inc., n.d.

"Pagitron: Electronic Pagination System combining graphics and text." Brochure #88. Optronics International Inc., n.d.

W. J. Schoenenberger, Director of Marketing, Optronics. Interview on June 23, 1978 at Optronics International Inc., 7 Stuart Road, Chelmsford, Massachusetts 01824.


THE PAGITRON SYSTEM
1722 Gravure Scanner/Plotter
large tablet
16K scanner CPU
silent write
CDC disc
8-8½ XII gravure pages
pictures, line art, logos
32K make-up & H&J CPU
Tektronix Terminal
small tablet
CDC disc
CDC disk
60M bytes 60M bytes
40,000,000 characters of text storage
terminal
terminal
terminal
terminal
terminal
electrostatic printer
paper tape reader
front end CPU
text
CDC disc 60M bytes
silent write
32K composition CPU
page proofer
CDC disc
CDC disc
CDC disc
60M bytes 60 M bytes 60M bytes
1722 gravure scanner plotter
large tablet
16K scanner CPU
silent write
CDC disc
60M bytes
8-8½ x 11 gravure pages